WHAT IS CLAIMED IS:

1. A communication system, comprising:

a RF amplifier having a power supply input and a signal input; and

a phase bandwidth reduction module coupled to the signal input and configured for reducing a bandwidth of a phase component of an input signal provided on the signal input.

2. The communication system of claim 1, further comprising:

a power supply amplifier coupled to the power supply input; and

an amplitude bandwidth reduction module coupled to an input of the power supply amplifier, the amplitude bandwidth reduction module reducing a bandwidth of an amplitude component of the input signal.

3. The communication system of claim 2, further comprising:

a delay filter coupled between an output of the amplitude bandwidth reduction module and the input of the power supply amplifier.

4. The communication system of claim 3, further comprising:

a polar generator having an input for receiving the input signal, a first output for providing a phase signal component of the input signal, and a second output for providing the amplitude component of the input signal to the amplitude bandwidth reduction module.

5. The communication system of claim 4, wherein the polar generator includes a rectangular to polar converter.

6. The communication system of claim 5, further comprising:

a polar to rectangular converter having a first input coupled to an output of the phase bandwidth reduction module, a second input coupled to a first output of the rectangular to polar converter, and an output coupled to the RF amplifier.

7. The communication system of claim 6, further comprising:

an upconverter coupled to the output of the polar to rectangular converter and the signal input of the RF amplifier.

8. The communication system of claim 7, wherein the upconverter includes at least one local oscillator and one bandpass filter (BPF).

9. The communication system of claim 8 further comprising:

at least one digital to analog converter (DAC), one low pass filter (LPF), and one in-phase/quadrature (I/Q) modulator coupled together and coupled between the output of the polar to rectangular converter and an input of the upconverter.

10. The communication system of claim 9, wherein the input signal is a baseband or radio frequency signal that has a high peak-to-average power ratio.

11. The communication system of claim 10, wherein the input signal is a code division multiple access (CDMA) signal.

12. The communication system of claim 11, wherein the input signal is a CDMAOne, CDMA2000, or a WCDMA signal.

13. The communication system of claim 12, wherein the communication system amplifies the input signal using envelope elimination and restoration (EER).

14. The communication system of claim 13, wherein the phase bandwidth reduction module reduces the bandwidth of the phase component of the input signal using a non-linear relationship between phase signal amplitude and CDMA signal amplitude.

15. The communication system of claim 14, wherein the amplitude bandwidth reduction module reduces the bandwidth of the amplitude component of the input signal using a non-linear relationship between supply voltage to the RF amplifier and CDMA signal amplitude.

16. The communication system of claim 14, wherein the phase bandwidth reduction module reduces the bandwidth of the phase component of the input signal based on a non-linear relationship $A_{phase} = A_{max} ((1-e^{px})/(1-e^{p}))$.

17. The communication system of claim 15, wherein the amplitude bandwidth reduction module reduces the bandwidth of the amplitude component of the input signal based on a non-linear relationship $VDD = (x+be^{(-x/b)})(V_{DDmax})$.

18. The communication system of claim 2, wherein the phase bandwidth reduction module reduces the bandwidth of the phase component of the input signal based on a non-linear relationship between phase signal amplitude and CDMA signal amplitude.

19. The communication system of claim 18, wherein the amplitude bandwidth reduction module reduces the bandwidth of the amplitude component of the input signal based on a non-linear relationship between supply voltage to the RF amplifier and CDMA signal amplitude.

20. The communication system of claim 19, wherein the phase bandwidth reduction module reduces the bandwidth of the phase component of the input signal based on a non-linear relationship $A_{phase} = A_{max}\ ((1-e^{px})/(1-e^{p}))$.

21. The system of claim 20, wherein the amplitude bandwidth reduction module reduces the bandwidth of the amplitude component of the input signal based on a non-linear relationship $VDD = (x + be^{(-x/b)})(V_{DDmax})$.

22. A base station in a wireless communications system, comprising:

a RF amplifier having a power supply input and a signal input; and

a phase bandwidth reduction module coupled to the signal input and configured for reducing a bandwidth of a phase component of an input signal provided on the signal input.

23. The base station of claim 22, further comprising:

a power supply amplifier coupled to the power supply input; and

an amplitude bandwidth reduction module coupled to an input of the power supply amplifier, the amplitude bandwidth reduction module reducing a bandwidth of an amplitude component of the input signal.

24. The base station of claim 23, further comprising:

a delay filter coupled between an output of the amplitude bandwidth reduction module and the input of the power supply amplifier.

25. The base station of claim 24, wherein the phase bandwidth reduction module reduces the bandwidth of the phase component the input signal using a non-linear relationship between phase signal amplitude and CDMA signal amplitude so as to reduce power leak through from a signal driver.

26. The base station of claim 25, wherein the amplitude bandwidth reduction module reduces the bandwidth of the amplitude component of the input signal using a non-linear relationship between supply voltage to the RF amplifier and CDMA signal amplitude.

27. The base station of claim 25, wherein the phase bandwidth reduction module reduces the bandwidth of the phase component of the input signal based on a non-linear relationship $A_{phase} = A_{max} ((1-e^{px})/(1-e^{p}))$.

28. The base station of claim 26, wherein the amplitude bandwidth reduction module reduces the bandwidth of the amplitude component of the input signal based on a non-linear relationship $VDD = (x + be^{(-x/b)})(V_{DDmax})$.

29. The base station of claim 28, wherein the input signal is a baseband or radio frequency signal that has a high peak-to-average power ratio.

30. The base station of claim 29, wherein the input signal is a code division multiple access (CDMA) signal.

31. The base station of claim 30, wherein the input signal is a CDMAOne, CDMA2000, or a WCDMA signal.

32. The base station of claim 30, wherein a base station transmitter amplifies the input signal using envelope elimination and restoration (EER).

33. A method for processing a communication signal, comprising:

separating an input signal into an amplitude component signal and a phase component signal;

reducing bandwidth of the phase component signal; and

controlling a signal input of a RF amplifier with the reduced bandwidth phase component signal.

34. The method of claim 33, further comprising:

reducing bandwidth of the amplitude component signal; and

controlling a supply voltage input of the RF amplifier with the reduced bandwidth amplitude component signal.

35. The method of claim 34, wherein the bandwidth of the phase component signal is reduced by using a non-linear relationship between the phase component signal amplitude and CDMA signal amplitude.

36. The method of claim 35, wherein the bandwidth of the amplitude signal component is reduced using a non-linear relationship between supply voltage to the RF amplifier and CDMA signal amplitude.

37. The method of claim 36, wherein bandwidth of the phase component signal is reduced based on a non-linear relationship $A_{phase} = A_{max} ((1-e^{px})/(1-e^{p}))$.

38. The method of claim 37, wherein the step of reducing the amplitude signal component bandwidth includes adjusting the phase component signal based on a non-linear relationship $VDD = (x + be^{(-x/b)})(V_{DDmax})$.

39. The method of claim 38, wherein the input signal is a baseband or radio frequency signal and has a high peak-to-average power ratio.

40. The method of claim 39, wherein the input signal is a code division multiple access (CDMA) signal.

41. The method of claim 40, wherein the input signal is a CDMAOne, CDMA2000, or a WCDMA signal.

42. The system of claim 41, wherein the method uses envelope elimination and restoration (EER) to amplify the input signal.